VEKSLER, M.A.

Experience with radioactive level gauges and level indicators. Khim. prom. no. 6:483-487 S '60. (MIRA 13:11)
(Liquid level indicators)
(Radioisotopes--Industrial applications)

S/064/60/000/006/C06/011
B020/B054

26.2246

AUTHOR: Veksler, M. A.

TITLE: An Attempt to Use Radioactive Level Gages and Level Indicators

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 6, pp. 45-49

TEXT: I. V. Sinchuk, I. P. Ginzburg, A. I. Chugunova, and O. A. Klippova assisted in the investigations. The radioactive level gage YP-2 (UR-2) designed by NIIteplopribor has a curved tube which comprises part of the circumference of the vessel with the liquid level to be measured. The radioactive radiation source is on one end, and a γ-counter of the type AMM-7 (AMM-7) on the other. Test results are indicated. The level gage showed certain defects, and had to be modified. The level regulator PYP-3 (RUR-3) is based on the same principle; it serves for measuring the level of liquids in high-pressure apparatus. It can also be used in explosive media (unlike the preceding type). Because of its shortcomings, it is not recommended for use in the industry. Another level gage developed by NIIteplopribor is the type YP-4 (UR-4) in which the

Card 1/2

protection from explosion is achieved by the blowing-through of air. Test results show that the metrological parameters of the apparatus UR-4 are slightly better than those of the apparatus UR-2. Some explosion-proof level gages were also produced by the "Fizpribor" Plant. Fig. 2 shows a device for testing the level gage UR-4. Fig. 3 shows an example of the recording of liquid levels. According to S. M. Bogatkov's suggestion, the radioactive level gage can also be used to control the operation of a feeding pump. The drop in the liquid level is automatically recorded. The author discusses the principle of the radioactive level indicators of the types NY-2 (IU-2), NY-6 (IU-6), NY-7 (IU-7), and PNY-1 (RIU-1), all of which are equipped with signal transmitters for certain positions of varying numbers. The indicators IU-2, IU-6, and RIU-1 were tested by a device schematically shown in Fig. 5. Fig. 6 shows the calibration curves for the radioactive level indicator IU-6. The special application of the instruments is recommended on the basis of the test results obtained. There are 6 figures and 5 Soviet references.

VEKSLER, M. A.

PA 40/49T39

Sep 48

USSR/Engineering
Furnaces, Blast
Oxygen

"Oxygen in Metallurgy," M. A. Veksler, Engr, 2 pp

"Nauka i Zhizn'" No 9

Explains use of oxygen-enriched air in blast furnaces, doubling productivity of furnace and reducing expenditure of coke. Recounts Vavilov's use of peat instead of coke in blast furnaces, in order to use furnace gases for heating. Describes N. I. Mozgovom's pioneer work in introducing oxygen blast in converter steel production.

40/49T39

FDB

[redacted]

VEKSLER, M. A.

VEKSLER, M. A. CA: 33-9072/9
J. Exptl. Theoret. Phys. (USSR), 9, 616-21 (1939)
Viscosity measurement at low temperatures by means of a disk viscometer.

[redacted]

39796
S/072/62/028/008/011/014
B104/B102

21.5112

AUTHOR: Veksler, M. A.

TITLE: A coordinate-manipulator and equipment for remote handling of radioactive isotopes

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 8, 1962, 995 - 996

TEXT: The manipulator shown in Fig. 1, developed by the author jointly with A. Kh. Breger, G. V. Vladimirov and Ye. V. Vereshchagin, is described in detail. The pneumatic grip (14) and electromagnetic grip (12) can pick up flasks of 15 - 50 mm diameter and flat objects from places below the level of the working surface in the working chamber (5·0.8·2.75 m). The central tube (8) can be raised at a rate of 6.7 cm/sec and lowered at a rate of 16.7 cm/sec; it can also be turned clockwise through 360° in 34 sec, and counterclockwise in 24 sec. The carriage (1) on the rails (2) can be moved to the right at a rate of 15.5 cm/sec and to the left at a rate of 21 cm/sec. Besides the manipulator, other instruments contained in the working chamber are discussed. From the control panel, the working chamber can be evacuated or filled with air. Observation is made through a mirror

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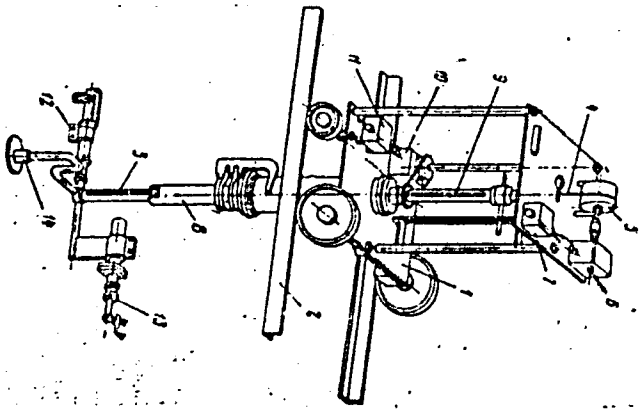
S/032/62/028/008/011/014
B104/B102

A coordinate-manipulator ...

periscope. There are 4 figures.

Fig. 1. Manipulator.



Card 2/2

S/081/62/000/004/037/087
B156/B138

AUTHORS: Veksler, M. A., Furman, K. S., Mukhin, G. A.

TITLE: Prospects for the adoption of radioactive fluid density meters in the organic synthesis industry (experience of testing and introduction)

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 314, abstract 4I206 (Sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR. v. 1". M., Gostoptekhizdat, 1961, 257 - 262)

TEXT: The results are given of long duration tests on radioactive fluid density meters with halogen counters (ПКР-1 (PZhR-1)), scintillation counters (ПКР-2 (PZhR-2)) and differential high pressure ionization chambers (ПКР-5 (PZhR-5)). The instruments were tested in aqueous solutions of calcium and zinc chlorides, and also in carbon tetrachloride. The tests made it possible to establish the effect of the composition of a liquid on instrument readings and the reproducibility of readings at different points on the scale. Design shortcomings were shown up and the basic error assessed. [Abstracter's note: Complete translation.]

Card 1/1

S/081/62/000/002/044/107
B156/B101

AUTHOR: Veksler, M. A.

TITLE: Prospects for the adoption of certain level gauges and indicators, utilizing radioactive radiation, in the organic synthesis industry (experience of experimenting and adoption)

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1962, 318, abstract 21109 (Sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR. T. I" M., Gostoptekhizdat, 1961, 318 - 328)

TEXT: Description is given of the design and working principles of the УР-2 (UR-2), УР-4 (UR-4), РУР-3 (RUR-3), ИУ-2 (IU-2), ИУ-6 (IU-6), ИУ-7 (IU-7) and РИУ-1 (RIU-1) level gauges and indicators, in which radioactive radiation is utilized; the results are given of industrial tests carried out in various conditions over many years. Details are given regarding reproducibility of readings and sensitivity thresholds (for the detector elements and secondary instruments); there is a list of modifications and structural alterations which will make the instruments more reliable. [Abstracter's note: Complete translation.]

Card 1/1

VEKSLER, M.D.

Accumulation of hydrocarbons as the cause of explosions in air separators. Khim.prom. [Ukr.] no.2:80 Ap-Je '65.
(MIRA 18:6)

VEKSLER, M.D.

Providing for the stability of the flow of low-boiling liquids through piping systems. Khim. prom. no.4:41-42 O-D '64.
(MIRA 18:3)

VEISLER, M.I.; KSENOFONTOVA, M.A.

Results of the treatment of gastric and duodenal ulcer with intramuscular injections of autohemolyzed blood. Klin. med., Moskva 30 no.2:69-70 Feb 1952. (CLML 22:1)

1. Of the Amalgamated Therapeutic Hospital of Kalininskiy Rayon, Moscow.

VEKSLER, M.A.

Automatic titrator for chemical analysis. Zav.lab. 26 no.9: 1146-1148 '60. (MIRA 13:9)
(Chemical apparatus)

VEKSLER, M.I., kand.med.nauk (Moscow)

Treating inoperable forms of cancer. Feld'. i akush. 23 no.8:52-55 Ag '58 (MIRA 11:8)

(CANCER)

VEKSLER, M.I.

We have increased the efficiency and operational reliability of electric substations. Elek. i tepl. tiaga no.1:21-23 Ja '61.
(MIRA 14:3)

1. Nachal'nik tyagovoy podstantsii Otrada.
(Electric railroads--Substations)

VEKSLER, M.I. (Moskva, Leninskiy prospekt, dom 30, kv. 225)

Etimidin therapy in neglected forms of lung cancer. Vop. onk. 9 no.8:11-13 '63 (MIRA 17:4)

1. Iz TSentral'noy klinicheskoy rentgeno-radiologicheskoy bol'nitsy Ministerstva putey soobshcheniya, Moskva.

VEKSLER, M.I., kand.med.nauk; KSENOFONTOVA, M.A.; LEYMAN, S.L.

Diuretic effect of novurit. Sov. med. 24 no. 10:82-84 O '60.
(MIRA 13:12)

1. Iz ob"yedinennoy gorodskoy bol'nitsy No. 12 Moskvy.
(DIURESIS AND DIURETICS)

VEKSLER, M.I., inzh.

Ways to prevent the corrosion of the elements of the rectifier's cooling system. Elek. i tepl.tiaga 6 no.8:22 Ag '62. (MIRA 17:3)

VEKSLER, M.I.

Means for increasing the reliability and selectivity of the production systems of traction substations. Elek.i tepl.tiaga 7 no.2:10-12 F '63. (MIRA 16:2)

1. Nachal'nik elektrotekhnicheskoy laboratorii Moskovskoy dorogi.

(Electric railroads—Substations).

VEKSLER, M. I., kand. med. nauk (Moskva)

Cancer of the esophagus and its treatment. Fel'd. i akush. 27 no.5:13-18 My '62. (MIRA 15:7)

(ESOPHAGUS--CANCER)

VEKSLER, M.I., kand.med.nauk (Moskva)

Analysis of gastric juice. Fel'd. i akush. 25 no.12:54-57 D '60.
(MIRA 13:12)

(GASTRIC JUICE--ANALYSIS)

MININ, G.A., kand.tekhn.nauk; VEKSLER, M.I., inzh.

Estimates for selecting traction capacities of power supply systems. Trudy MIIT no.104:126-137 '59. (MIRA 12:9)
(Electric railroads--Substations)

VEKSLER, M.I., kand. med. nauk. (Moskva, ul. B. Pochtovaya, d. 18/20, korp. 10, kv. 4)

Rare case of primary lymphosarcoma of the liver treated with x-rays. Vest. rent. i rad. 34 no.1:80-81 Ja-F '59. (MIRA 12:3)

1. Iz TSentral8noy klinicheskoy rentgeno-radiologicheskoy bol'nitsy (nach. I.M. Lobodenko, konsul'tant - prof. N.P. Negovskiy) Ministerstva putey soobshcheniya.

(LIVER, NEOPLASMS, ther.
x-ray ther. in primary lymphosarcoma (Rus))
(LYMPHOSARCOMA, ther.
x-ray ther. in primary lymphosarcoma of liver (Rus))
(RADIOTHERAPY, in various dis.
primary lymphosarcoma of liver, x-ray ther. (Rus))

VEKSLER, M.I., kand.med.nauk (Moskva)

Bronchial sarcoma. Vrach.delo.no.10:1089-1091 O'58 (MIRA 11:11)

1. TSentral'naya klinicheskaya rentgeno-radiologicheskaya bol'nitsa Ministerstva putey soobshcheniya.
(BRONCHI--TUMORS)

VEKSLER, M.I., kand.med.nauk (Moscow)

Use of rabies vaccine in neglected forms of cancer. Vrach.delo no.6:655 Je '58 (MIRA 11:7)

1. TSentral'naya klinicheskaya rentgeno-radiologicheskaya bol'nitsa Ministerstva putey soobshcheniya.
(RABIES)
(CANCER)

VEKSLER, M.I., kand.med.nauk (Moskva)

Diabetes mellitus and modern methods for its treatment. Fel'd. i akush. 22 no.10:46-52 O '57. (MIRA 11:1)
(DIABETES)

VEKSLER, M.I., kandidat meditsinskikh nauk (Moskva)

Botkin's disease. Fel'd. i akush. 21 no.8:7-11 Ag '56. (MLRA 9:10)
(HEPATITIS, INFECTIOUS)

VEKSLER, M.I.

Clinical aspects and therapy of primary cancer of the lung. Fel'dsher & akush. no.10:16-20 Oct 1953. (CLML 25:4)

1. Candidate Medical Sciences. 2. Moscow.

VEKSLER, M. I., KSENOFONTOVA, M. A.

Stomach - Ulcers

Results of the treatment of gastric and duodenal ulcer with intramuscular injections of autohemolyzed blood. Klin. med. 30 No. 2 (1952)

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1953, Uncl.

VEKSLER, M.I., kandidat meditsinskikh nauk (Moscow).

Primary pulmonary sarcoma. Fel'd.i akush. no.3:53 Mr '54.
(MLRA 7:3)
(Lungs--Cancer)

VEKSLER, M.I.,
YA. I. DAIKHOVSKII, Maslobolno Zhirovoe Delo 14, No. 3,
20-1 (1938)

VENGLIR, M.I.

Hodgkin's Disease

Lymphogranulomatosis. Fel'd. i akush., No. 8, 1952.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED

VEKSLER, M.I., kandidat meditsinskikh nauk (Moscow).

Clinical aspect and treatment of cancer of the lungs. Fel'd.i akush. no.10: 16-20 O '53. (MLRA 6:10)
(Lungs--Cancer)

VEKSLER, M. I., KSENOFONTOVA, M. A.

Blook as Food or Medicine

Results of the treatment of gastric and duodenal ulcer with intramuscular injections of autohemolyzed blood. Klin. med. 30, No. 2, Feb. 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1953, Uncl.

VEKSLER, M. I., KSENOFONTOVA, M. A.

Duodenum - Ulcers

Results of the treatment of gastric and duodenal ulcer with intramuscular injections of autohemolyzed blood. Klin. med. 30, No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 /1953, Uncl.

KAL'F-KALIF, Ya.Ya. (Khar'kov) [reviewer]; VEKSLER, M.I.; KSENOFONTOV, M.A.[author].

Remarks on M.I.Veksler and M.A.Ksenofontova's article:"Treatment of gastric and duodenal ulcers by injections of autohemolysed blood." IA.IA.Kal'f-Kalif. Klin.med. 31 no.10:84-85 O '53. (MLRA 6:11)
(Ulcers) (Blood as food or medicne) (Veksler, M.I.) (Ksenofontova, M.A.)

VEKSLER, Maks Saulovich; ZEMEL'MAN, M.A., red.

[Electrostatic devices] Elektrostaticheskie pribory. Moskva, Energiia, 1964. 94 p. (Elektroizmeritel'nye pribory no.7) (MIRA 17:8)

SOV/99-59-8-6/10

15(6), 30(1)

AUTHOR: Veksler, M.S., Engineer (Leningrad)

TITLE: Use of Asbestos-Cement Tubes in Artesian Well Drilling

PERIODICAL: Gidrotekhnika i melioratsiya, 1959, Nr 8, pp 34-40 (USSR)

ABSTRACT: Lately in the USSR asbestos cement pipes are being used instead of metal pipes. The Ministry of Agriculture of the RSFSR used these pipes also for the construction of 150 artesian wells with a depth of 40 to 100 meters. Used were socket pipes made of asbestos cement, type "Simpleks". Since 1958 the enterprise "Altayvodstroy" uses cast iron socket pipes. This problem is not studied enough and the disadvantages here are considerable (pressure up to 8-10 atm., resistance, strength, etc.). Three tables illustrate the differences and the advantage of steel pipes. It is important to prepare new sizes of asbestos cement pipes. The management of "Leningradsel'khozvodstroy" prepared these tables for the utilization of metal socket pipes. (Table 5 and 6). Result: The asbestos cement socket pipes are only applicable for pipes up to 8" in diameter. This year the Institute at Leningrad

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SOV/99-59-8-6/10

Use of Asbestos-Cement Tubes when Artesian Well Drilling

will experiment with asbestos cement pipes of 8" in diameter for the construction of an artesian well down to 160 m depth. There are 9 tables and 6 diagrams.

Card 2/2

L 29784-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k) IJP(c) WW/EM

ACC NR: AP6014857 SOURCE CODE: UR/0023/65/000/004/0559/0563

AUTHOR: Veksler, N.

ORG: Institute of Cybernetics, Academy of Sciences Estonian SSR (Institut kibernetiki Akademii nauk Estonskoy SSR)

TITLE: Effect of dynamic loading on a spherical shell

SOURCE: AN EstSSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 4, 1965, 559-563

TOPIC TAGS: shell theory, spheric shell structure, shell deformation, aerodynamic load, cyclic load

ABSTRACT: A theory of the Timoshenko type is used for dimensional analysis of axially symmetric wave deformation of a thin elastic spherical shell under a normal load uniformly distributed along the segment of a small angle $2\phi_0$. The system of equations of motion as well as the initial and boundary conditions are given in a previous work (Veksler, N. D., Nigul, U. K., "On Application of a Theory of the Timoshenko Type to the Case of an Axially Symmetric Wave Process of Deformation of a Spherical Shell", *Izv. AN SSSR, Mekhaniki i mashinostroyeniye* (in press)] where it is also shown that a Laplace transform and formulas for connected spherical functions which are asymptotic at large s (Laplace transform parameter) may be used to separate the parts of the functions which are discontinuous at the wave front; the net-point method was proposed for

Card 1/2

L 29784-66

ACC NR: AP6014857

calculating the continuous parts of the functions appearing in the equations of motion. The author gives numerical results for calculation of a shell with a relative thickness of $2h/R=1/25$ ($2h$ is the thickness of the shell, R is the radius). The nature of the stressed state close to the point of load application and the effect of the angle $2\phi_0$ on the theoretical coefficients are analyzed. The possibilities for transition from shell calculations by this method to calculations based on Kirchhoff-Love theory are discussed. The author thanks M. Peterson for her assistance in setting up the program for using the net-point method to solve the given problem. Orig. art. has: 7 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 03Jun65/ ORIG REF: 001

Card 2/2

VEKSLER, N. (Tallin); MYANNIL', A.I. [Männil, A.] (Tallin); NIGUL, U. (Tallin)

Using the method of lattices in a Timoshenko-type theory for investigating transient wave processes of deformations of finite-length plates. Prikl. mekh. 1 no.12:38-49 '65.

(MIRA 19:1)

1. Institut kibernetiki AN Estonskoy SSR. Submitted Jan. 4, 1965.

VEKSLER, N.

Calculation of a spherical shell under a dynamic load. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 14 no. 4:559-563 '65. (MIRA 19:2)

1. Institut kibernetiki AN Estonskoy SSR. Submitted June 3, 1965.

L 30206-66 EWT(d)/EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k)/ETA(h)/EWA(m)-4 IJP(c) WW/RM/GD-2

ACC NR: AP6011131 SOURCE CODE: UR/0424/66/000/001/0074/0080

AUTHORS: Veksler, N. D. (Tallin); Nigul, U. K. (Tallin)

ORG: none

TITLE: The theory of wave processes in the axially symmetric deformation of spherical shells

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 1, 1966, 74-80

TOPIC TAGS: solid mechanics, stress distribution, spheric shell structure, elastic deformation, Laplace transform

ABSTRACT: The intermediate wave process as in the deformation of spherical shells when the shell is subjected to sudden loading at its poles is analyzed. The Timoshenko-type equations of motion

$$\begin{cases} [k^{-2}(\partial_\varphi^2 + \operatorname{ctg}\varphi\partial_\varphi - \operatorname{ctg}^2\varphi - \nu) - 1 - (1 + a^2)\partial_\tau^2]u + (1 - 2a^2\partial_\tau^2)\psi + \\ \quad + [1 + k^{-2}(1 + \nu)]\partial_\varphi w = 0 \\ (1 - 2a^2\partial_\tau^2)u + [k^{-2}a^2(\partial_\varphi^2 + \operatorname{ctg}\varphi\partial_\varphi - \operatorname{ctg}^2\varphi - \nu) - \\ \quad - 1 - a^2\partial_\tau^2]\psi - \partial_\varphi w = 0 \\ [1 + k^{-2}(1 + \nu)](\partial_\varphi + \operatorname{ctg}\varphi)u - (\partial_\varphi + \operatorname{ctg}\varphi)\psi + [-(\partial_\varphi^2 + \operatorname{ctg}\varphi\partial_\varphi) + \\ \quad + (1 + a^2)\partial_\tau^2 + 2k^{-2}(1 + \nu)]w = 0 \end{cases}$$

Card 1/2

L 39806-66

ACC NR: AP6011131

are Laplace-transformed to give the algebraic equations

$$\begin{cases} [k^{-2}(-\gamma+1-\nu)-1-(1+a^2)s^2]u^L+(1-2a^2s^2)\psi^L+ \\ \qquad +[1+k^{-2}(1+\nu)]w^L=0 \\ (1-2a^2s^2)u^L+[k^{-2}a^2(-\gamma+1-\nu)-1-a^2s^2]\psi^L-w^L=0 \\ \gamma[1+k^{-2}(1+\nu)]u^L-\gamma\psi^L-[\gamma+(1+a^2)s^2+2k^{-2}(1+\nu)]w^L=0 . \end{cases}$$

For $s \to \infty$, the method of inverse contour integration is used to study the wave processes at the propagation front. This asymptotic analysis yields expressions for the stress distribution on the shock front. These results are applied to the case of a spherical shell with a uniform load applied suddenly at the poles. Numerical results are obtained and compared with the axially symmetric wave processes in a slab. The authors thank M. Peterson for programming and carrying out the numerical calculation on the ETsVM Minsk-2. Orig. art. has: 35 equations and 2 figures.

SUB CODE: 20/ SUBM DATE: 20Apr65/ ORIG REF: 005/ OTH REF: 004

Card 2/2 nlc

ACC NR: AP7004260 SOURCE CODE: UR/0432/66/000/002/0056/0057

AUTHOR: Veksler, N. G.

ORG: none

TITLE: Method for enhancing fidelity of transmission

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 2, 1966, 56-57

TOPIC TAGS: data transmission, signal transmission, reception fidelity

ABSTRACT: Applicable to wire communication channels, a method is suggested of enhancing digit-transmission fidelity by sending the same message over two parallel subchannels; in one of them the message is time-shifted with respect to the message in the other subchannel. A time-sequence diagram and a block diagram illustrate the method, which is held expedient for such channels where the probability of double error is close to the probability of single error. Applicability of the method to data-transmission switched systems is regarded as its essential advantage. Orig. art. has: 2 figures and 3 formulas.

SUB CODE: 09, 17 / SUBM DATE: none / ORIG REF: 000

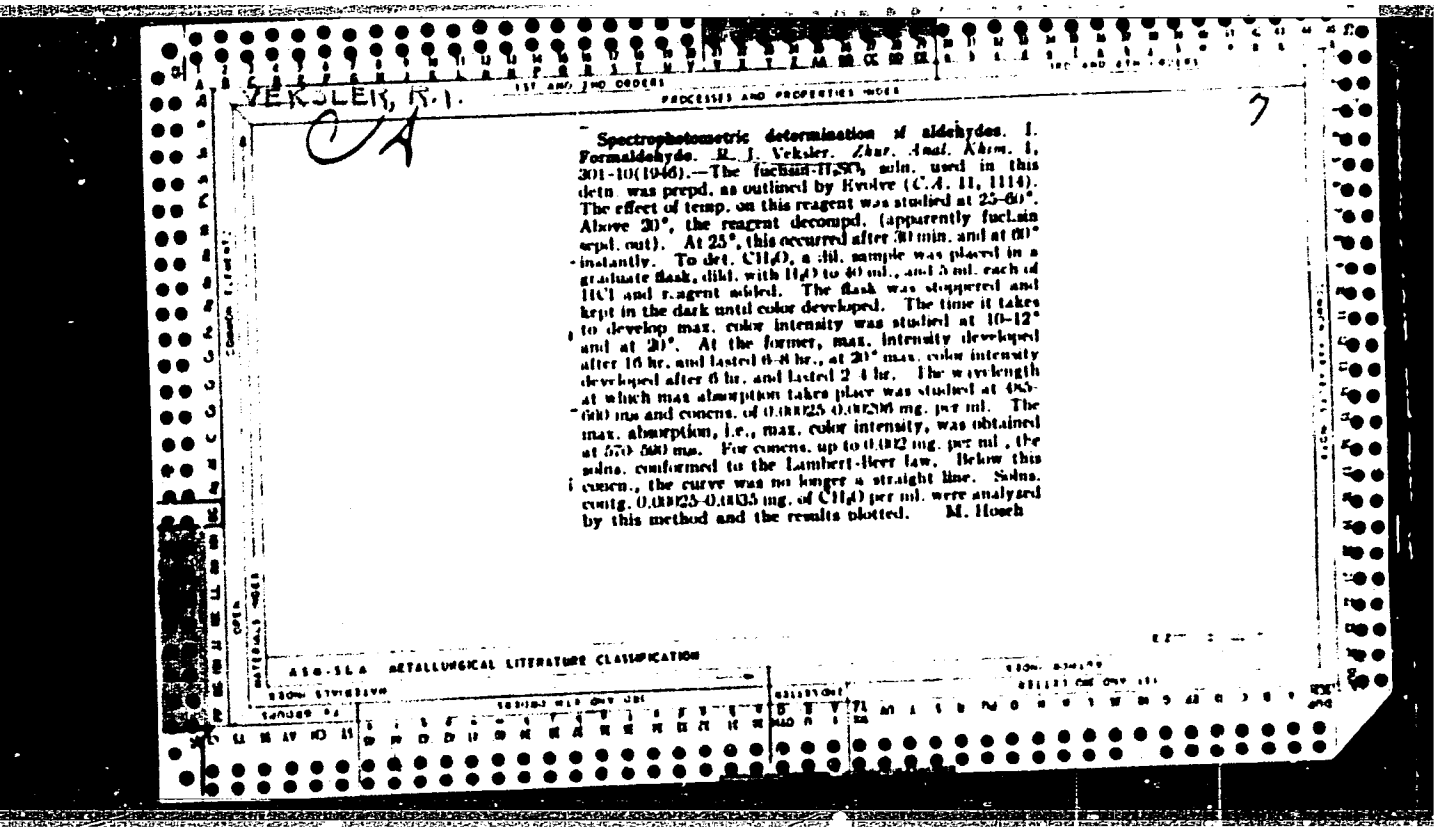
UDC: 681.391.82

Card 1/1

VEKSLER, P.A.

Filtering diatomites. Sakh. prom. 33 no.2:45-47 F '59.
(MIRA 12:3)

1.TSentral'nyy nauchno-issledovatel'skiy institut krakhmal'no-patochnoy promyshlennosti.
(Kieselguhr) (Filters and filtration)



VEKSLER, R. I.

CA

PROCESSES AND PROPERTIES INDEX

7

Spectrophotometric determination of aldehydes. I. Formaldehyde. R. I. Veksler. *Zhur. Anal. Khim.* 1, 301-10(1946).—The fuchsin-H$_2$SO$_3$ soln. used in this detn was prepd. as outlined by Kvalve (*C.A.* 11, 1114). The effect of temp. on this reagent was studied at 25–60°. Above 30°, the reagent decompd. (apparently fuchsin sepd. out). At 25°, this occurred after 30 min. and at 60° instantly. To det. CH_2O, a 5-ml. sample was placed in a graduate flask, dild. with H_2O to 40 ml., and 5 ml. each of HCl and reagent added. The flask was stoppered and kept in the dark until color developed. The time it takes to develop max. color intensity was studied at 10–12° and at 20°. At the former, max. intensity developed after 16 hr. and lasted 6–8 hr., at 20° max. color intensity developed after 6 hr. and lasted 2–4 hr. The wavelength at which max absorption takes place was studied at 485–600 mμ and concns. of 0.00025–0.0025 mg. per ml. The max. absorption, i.e., max. color intensity, was obtained at 550–560 mμ. For concns. up to 0.002 mg. per ml., the solns. conformed to the Lambert-Beer law. Below this concn., the curve was no longer a straight line. Solns. contg. 0.00025–0.0035 mg. of CH_2O per ml. were analyzed by this method and the results plotted. M. Hoch

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

VEKSLER, R. I.

Sci. Res. Inst. Chem., Gorky State Univ., (-1946-)

"Spectrophotometric Method for Determining Formaldehyde,"

Zhur. Analit. Khim., No. 5-6, 1946.

CA VEKSLER, R.I.

4

Spectrophotometric determination of aldehydes. II. 2-Furaldehyde and formaldehyde present together. R. I. Veksler. *Zhur. Anal. Khim.* 4, 14-20(1949); cf. *C.A.* 43, 4976g. To det. 2-furaldehyde (I) transfer a vol. of the soln. to a 50-ml. flask, add H_2O to make 45 ml., and then add 5 ml. of Schiff's soln. The desired pH for this test is 2.7. As the pH diminishes, the intensity of color decreases until at pH 0.7 the soln. becomes colorless. At 18° the max. color intensity develops immediately and gradually diminishes. At 3–15°, the max. color intensity develops within 10–30 min. and then starts fading. The lower the temp., the slower the fading. The max. absorption is at 555–565 mμ. wave length. At the lower concn. the curve concn. *vs.* absorption does not follow the Lambert-Beer law and then an empirical curve should be used to interpret the spectrophotometric readings. When I and HCHO (II) are present together, transfer equal vols. of the soln. to two 50 ml. flasks. To one of these add H_2O to make 40 ml., 5 ml. of 6 *N* HCl, and 5 ml. of Schiff's soln. Close the flask tightly, mix, and place for 6 hrs. in a thermostat at 30°. Det. the II spectrophotometrically. If the II content does not exceed 0.13 mg., det. I in the 2nd sample as above. If the II content is above 0.13 mg., dil. the soln. to reduce it below this value. M. Hoseh

Sci. Res. Inst. Chem., Gor'kiy State U.

VEKSLER, R. I.

62/49T51

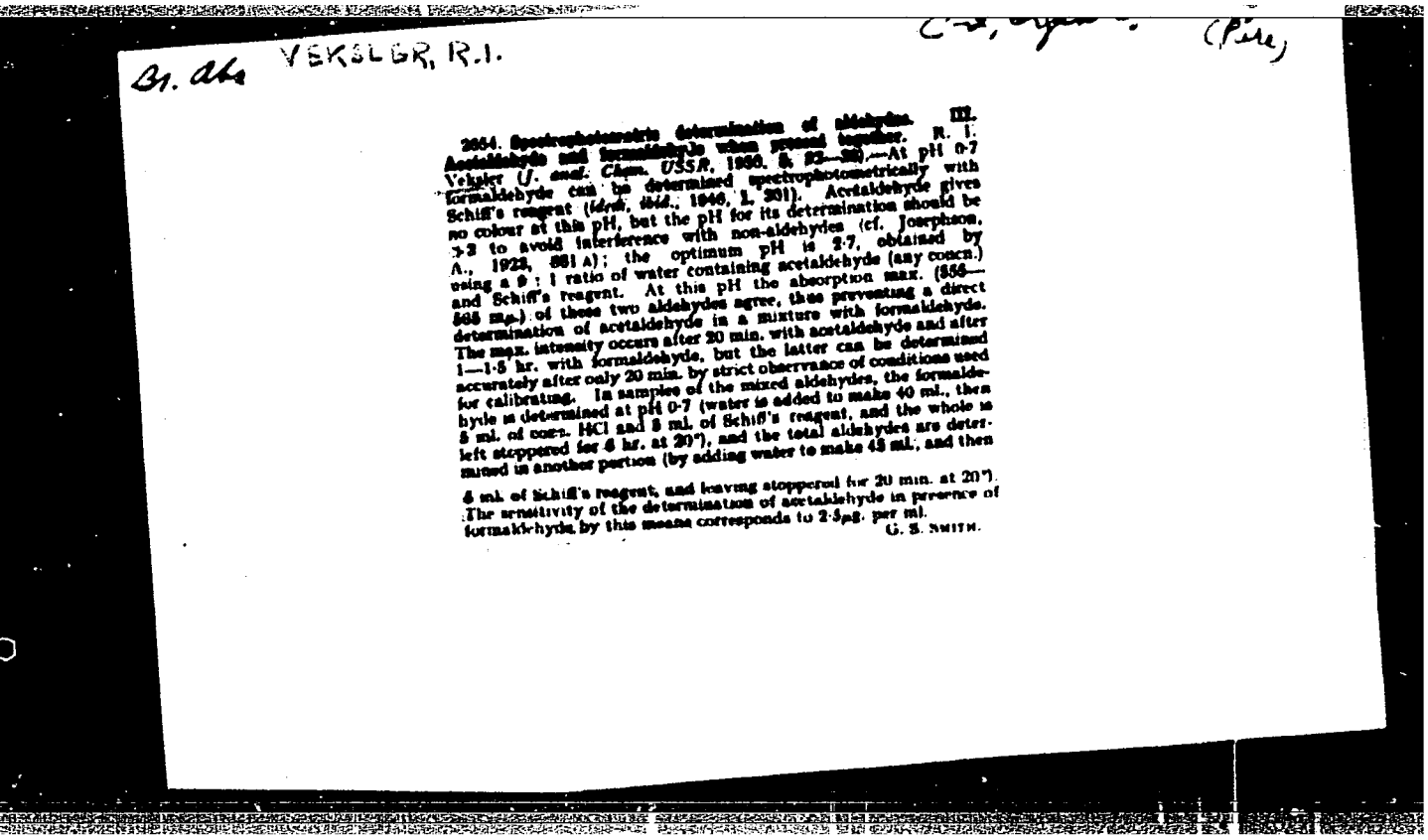
USSR/Medicine - Alloxan
Medicine - Biochemistry
Jul/Aug 49

"Determination of Alloxan in Pure Solutions and in the Blood by a Polarographic Method," R. I. Veksler, Chair of Path Physiol, Chair of Inorg Chem, Gor'kiy Med Inst, 6¼ pp

"Biokhim" Vol XIV, No 4

Developed a method of polarographic determination of alloxan in pure solutions. Optimum conditions indicated pH of 5.5-6.2 at 16°C. Sensitivity of the reading is 0.3.10-3M/l. This method may have application in the determination of alloxan in the blood. Submitted 3 Dec 48.

62/49T51



Gl. Abs VEKSLER, R.I.

2664. Spectrophotometric determination of aldehydes. III. Acetaldehyde and formaldehyde when present together. R. I. Veksler *U. anal. Chem. USSR*, 1950, 5, 82—88.—At pH 0·7 formaldehyde can be determined spectrophotometrically with Schiff's reagent (*Idem, ibid.*, 1946, 1, 201). Acetaldehyde gives no colour at this pH, but the pH for its determination should be >2 to avoid interference with non-aldehydes (cf. Josephson, A., 1922, 881 A); the optimum pH is 2·7, obtained by using a 9 : 1 ratio of water containing acetaldehyde (any concn.) and Schiff's reagent. At this pH the absorption max. (556—565 mμ.) of these two aldehydes agree, thus preventing a direct determination of acetaldehyde in a mixture with formaldehyde. The max. intensity occurs after 20 min. with acetaldehyde and after 1—1·5 hr. with formaldehyde, but the latter can be determined accurately after only 20 min. by strict observance of conditions used for calibrating. In samples of the mixed aldehydes, the formaldehyde is determined at pH 0·7 (water is added to make 40 ml., then 5 ml. of concn. HCl and 8 ml. of Schiff's reagent, and the whole is left stoppered for 6 hr. at 20°), and the total aldehydes are determined in another portion (by adding water to make 45 ml., and then 5 ml. of Schiff's reagent, and leaving stoppered for 20 min. at 20°). The sensitivity of the determination of acetaldehyde in presence of formaldehyde by this means corresponds to 2·5μg. per ml.

G. S. SMITH.

VEKSLER, R.I.

Destruction of alloxan in the blood in animals. Biokhimiia 21 no.5: 542-545 S-O '56. (MLRA 9:12)

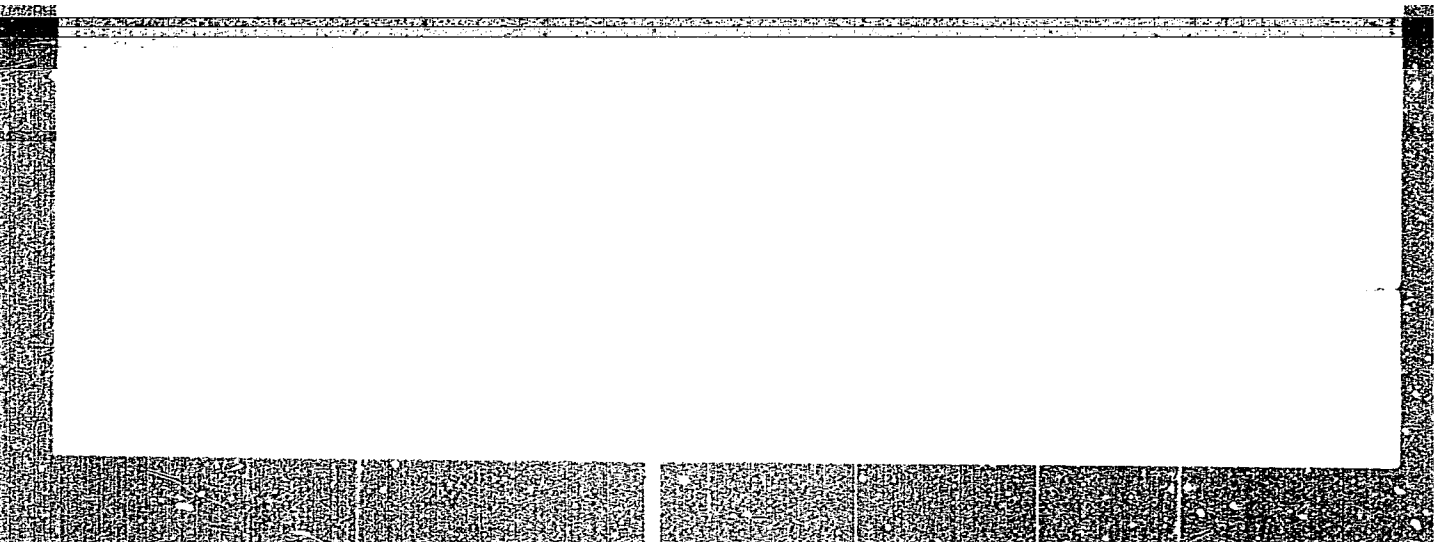
1. Kafedra obshchey analiticheskoy khimii Gor'kovskogo meditsinskogo instituta im. S.M.Kirova.

(ALLOXAN, in blood,
destruction rate in vivo & in vitro (Rus))

VEKSLER, R.I.

Dithizone determination in animal blood [with summary in English]. Biokhimiia 24 no.1:42-45 Ja-F '59. (MIRA 12:4)

1. Chair of Inorganic and Analytical Chemistry, the Medical Institute, Gorky.
(INDICATORS AND REAGENTS, in blood,
dithizone, determ. (Rus))



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859310002-2"

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859310002-2"

VEKSLER, S. G.

New types of consumer goods; based on foreign patents, catalogs and periodicals. Moskva, Gosplanizdat, 1940. 91 p.

Cyr.4 TX6

VEKSLER, V.A.; KUZMENOK, V.F.

Conference seminar of psychiatrists of the Sverdlovsk Province. Zhur.nevr.i psikh. 53 no.10:828-829 O '53. (MLRA 6:10)
(Sverdlovsk Province--Psychiatry) (Psychiatry--Sverdlovsk Province)

VEKSLER, V.I., Cand Tech Sci --(diss) " Induction method of study[illegible] the environs of drilling wells at the sites of ore deposits." Mos, 1958 11 pp (Min of Higher Education USSR, Mos Geol-Prospecting Inst im S. Ordzhonikidze) 120 copies (KL, 24-58, 118)

VEKSLER, V.I.

AUTHORS: Veksler, V. I. and Plyusnin, M. I. 49-7-3/14

TITLE: Low frequency electromagnetic investigation of the neighbourhood of wells. (Nizkochastotnoye elektromagnitnoye issledovaniye okrestnostey skvazhin).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1957, No.7, pp.934-939 (USSR)

ABSTRACT: In exploring ore deposits by drilling, missing of ore deposits is a frequent occurrence particularly in the case of distribution c the drilling holes at large spacings. Reducing the spac ngs between the individual drillings sufficiently to clude any possibility of missing of the ore body would increase very appreciably the cost of prospecting and, therefore, any method of geophysical investigations which permits detection of ore bodies missed by the drill holes is of great importance, since it would enable reduction of the density of the network of the drillings and reduce the cost of the exploration work. Investigation of the neighbourhood of the individual bore holes and the sections between the bore holes by electrical methods can be effected most successfully in the case of ore bodies with high conductivities located inside rocks of low conductivity. Such conditions exist in certain deposits of pyrites, polymetallic and copper-nickel sulphide deposits.

Card 1/4

Low frequency electromagnetic investigation of the neighbourhood of wells. (Cont.)

From 1953 onwards the Moscow Geological Prospecting Institute (Moskovskiy Geologo-Razvedochnyy Instituta) in agreement with the Kazakh Geological Directorate (Kazakhskiy Geologicheskoye Upravleniye) has been engaged in developing an electromagnetic method of investigation in the neighbourhood of the bore holes using sonic frequency a.c. The method consists of placing at the surface in the neighbourhood of the bore hole a large loop fed by sonic frequency a.c. from a special generator and to measure the elements of the magnetic field produced by this loop inside the bore hole. For simplifying the problem, the medium is considered uniform and disturbed only by the presence of bodies with good conductivity. The field of the loop can be considered as being the sum of two fields: the primary normal one and the secondary, anomalous one. The first represents the magnetic field which would exist if the medium below the surface would be uniform, the second represents the magnetic field of the currents induced in the ore body. Fig.3 gives a block schematics of the apparatus for measuring the amplitude and phase characteristics of the a.c. magnetic field inside the bore holes.

Low frequency electromagnetic investigation of the neighbourhood of wells. (Cont.)

Figs. 1 and 2 give the amplitudes of the vertical component of the magnetic field in presence of conducting discs of various diameters at various distances from the observed profile. Field work carried out in one of the polymetallic ore regions of Southern Kazakhstan is described. The obtained results are illustrated by the graph, Fig.5, which show that at a depth of 100 km, where the well intersected an ore body, no anomaly was observed in the graph of the amplitudes of the axial component, whilst the anomaly in the phase graph is very small. This is due to the fact that the profile of the measurements is near to the vertical edge of the ore body and, according to model tests, no anomaly would be observed for this case. The most pronounced anomaly is observed on the phase graph of the transverse component, where the phase shift changes by 46°. The interval in which there is a difference between the observed values and the normal ones exceeds considerably the thickness of the ore body. The given material to some extent confirms the correctness of the assumptions and of the preliminary selection of the technique and the methods used for its execution.

Card 3/4

Moscow Geological Prospecting Inst.

SEMENOV, A.S.; PETROVSKIY, A.D.; SVIYAZHENINOV, F.I.; MAKAROV, A.N.; VEKSLER, V.I.; KHARLAMOV, I.P.

Electric prospecting operations in studying deep-seated sulfide veins. Uch.zap.LGU no.303:203-221 '62. (MIRA 15:11)
(Sulfides) (Electric prospecting)

VEKSLER, V.I.; BEN'YAMINOVICH, M.B.

Surface ionization during the evaporation of certain metals.
Dokl.AN Uz.SSR no.9:35-37 '56. (MIRA 12:6)

1. Sredneaziatskiy gos.universitet im. V.I.Lenina. Predstavleno akademikom AN UzSSR S.U.Umarovym.
(Ionization) (Metals)

VEKSLER, V.I.; BEN'YAMINOVICH, M.B.

Secondary ion emission of molybdenum following its bombardment by positive cesium ions, sodium and potassium spray coating and oxygen interaction. Trudy SAGU no.91:57-66 '57. (MIRA 11:2)
(Thermionic emission) (Molybdenum)

21(7)

AUTHOR: Veksler, V.I.

06554
SOV/166-59-4-5/10

TITLE: Electron Exchange for an Interaction of a Slowly Movable Atom With the Metal Surface

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Nr 4,pp 34-41 (USSR)

ABSTRACT: The author calculates in a rough approximation the probability of neutralization of an ion for a slow motion from a metal surface in the case $\varphi < V_i$. V_i is the potential of ionization of an isolated atom. The calculation is carried out by the schematized one-dimensional model analogous to one of A.I.Ansel'm [Ref 7]. The solution of the stationary Schrödinger equation is obtained as in [Ref 3] by cutting into pieces of the wave functions at the points of discontinuity of the potential. Then the stationary solution is generalized to the case of an ion disappearing from a surface. Transitions combined with the change of the electron energy in the translation energy of the ion, are neglected. The formula found for the sought probability permits to explain qualitatively some facts stated experimentally, e.g. to give the reason why

Card 1/2

Electron Exchange for an Interaction of a Slowly Movable Atom With the Metal Surface

06554
SOV/166-59-4-5/10

the experimentally determined coefficient of the cathode sputtering is 10^7-10^9 times greater than that calculated theoretically according to the formulas of L.N.Dobretsov and others.

There is 1 figure, and 19 references, 13 of which are Soviet, 3 American, and 3 German.

ASSOCIATION: Sredneaziatskiy gosuniversitet imeni V.I.Lenina (Soviet) Central Asian State University imeni V.I.Lenin)

SUBMITTED: March 17, 1959

Card 2/2

VEKSLER, V.I.

Scattering effect of a wire grid on charged particles. Dokl. AN Uz. SSR no.7:10-13 '59. (MIRA 12:10)

1.Sredneaziatskiy gos. universitet im. V.I. Lenina. Predstavleno akad. AN UzSSR U.A. Arifovym.
(Particles--Scattering)

VEKSLER, V.I.

Temperature dependence of the coefficient of ion reflection from a metallic surface. Dokl.AN Uz.SSR no.11:9-12 '59.
(MIRA 13:4)

1. Srednoaziatskiy gosuniversitet im. V.I.Lenina. Predstavlono akad. AN UzSSR S.V.Starodubtsevym.
(Ionization)

VEKSLER, V. I.

82008
S/056/60/038/02/03/061
B006/B011

9.3120

AUTHOR: Vekseler, V. I.

TITLE: Energy Distribution of Sputtered and Scattered Ions in the Bombardment of Tantalum and Molybdenum Surfaces With Positive Cesium Ions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 324 - 334

TEXT: The author wanted to work out a method of investigating the energy spectra of the various components of ion emission of metal surfaces bombarded with positive ions. He wanted his method to be free from the deficiencies exhibited by other methods described in the introduction. The author reports on this method and the energy distributions of sputtered and scattered ions determined thereby. The procedure and the setup are first described in great detail. Fig. 1 shows a scheme of the setup used. The principle of the method consisted essentially in that a retarding electrostatic field was used in addition to the mass spectrometer. The delay curves of the secondary Cs^+-ions, obtained on bombard-

Card 1/3

ing molybdenum (V_n=100 v) and tantalum (V_n=250 v) targets with Cs^+ ions are shown in Figs. 4a and 5a. The energy distribution curves f(W) of the secondary ions were calculated from these delay curves by means of equation (1), and are shown in Figs. 4b and 5b. All curves taken at high target temperatures have the steep drop of f(W) at W ~ ∓ 2 ev in common. This effect had already been observed earlier and is briefly discussed here. The delay curves of the Mo^+ and Ta^+ ions are shown in Figs. 6a and 7a, the respective energy distributions in Figs. 6b and 7b. The target temperatures were in the range of 1,600 - 1,800°K, the bombarding ions had an energy U = 900 - 2,150 ev. The absolute values of the sputtering coefficient (K_{sp} $2.5 \cdot 10^{-3}$ for Mo^+, and $K_{sp} = 6 \cdot 10^{-3}$ for Ta^+ at U = 2,150 ev and T = 1,800°K) agree with data known from publications. The energy distribution curves of Mo^+ and Ta^+ exhibit distinct peaks in the range of small energies. To clarify their nature in the case of Mo^+, the author studied the dependence of the Mo^+ ion current on the target temperature (Fig. 8). The course was the same as the one obtained

Energy Distribution of Sputtered and Scattered Ions in the Bombardment of Tantalum and Molybdenum Surfaces With Positive Cesium Ions

S/056/60/038/02/03/061
B006/B011

earlier by the author on molybdenum bombardment with Hg^+. In the case of Mo^+, the measured width of the sputtered ion spectrum was found to be 30-35 ev, and in the case of Ta^+, it was 35-50 ev (Figs. 6b and 7b), which is a considerably higher value than the one (5 ev) obtained by Bradley (Ref. 8). This is indicative of the fact that the ionization probability of a sputtered atom escaping from the surface increases with increasing energy of this atom. U. A. Arifov and A. Kh. Ayukhanov are mentioned. There are 8 figures and 14 references: 8 Soviet, 4 German, and 2 American.

ASSOCIATION: Sredneaziatskiy gosudarstvennyy universitet ([Soviet] Central Asia State University)

SUBMITTED: June 30, 1959

Card 3/3

S/057/61/031/003/019/019
B125/B209

26.2312

AUTHOR: Veksler, V. I.

TITLE: Investigation of nonsteady processes during cathode sputtering by means of a tube electrometer with high time constant

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 3, 1961, 387-388

TEXT: The present paper deals with methods and some results of an investigation of nonsteady processes during cathode sputtering after degassing of an ion-bombarded target. The ion component of cathode sputtering was examined by mass spectrometry in a previous paper (V. I. Veksler, ZhETF, 38, 324, 1960). Since the current was very low, it was measured by a tube electrometer. In measurements of low currents depending on time as $i(t)$ by means of a tube electrometer, the time constant τ of the input circuit of this instrument must be smaller than the reciprocal value f of the rate of variation of the current to be examined. However, for τ and f the correct function $i(t)$ may be ascertained by a certain transformation of the electrometer readings. In particular, when a tube electrometer is connected to the output of the mass spectrometer, the grid potential V

of the electrometer tube is connected with the examined current by the relation $i(t) \sim \frac{1}{R}\left(\tau \frac{dV}{dt} + V\right)$, $\tau = RC$ (1). R denotes the resistance in the grid circuit of the electrometer tube, and C is the input capacity of the electrometer. When $T \ll \tau$ holds for the setting time of the measuring device, the form of $i(t)$ can be calculated from Eq. (1). The device used in the present work has been described in detail in the previous paper mentioned above. τ was 13 sec and $T = 4$ sec. The subject investigated in the present paper was the sputtering of Mo^+ ions during bombardment of a molybdenum target by Cs^+ ions (2150 ev). The data found in this study were transformed through Eq. (1). The results of this transformation for various current densities j_o of the ions striking the target are shown in Fig. 1. Curve 4, which illustrates the effect of the transformation, corresponds to curve 2. The rising current of the scattered Cs^+ ions with proceeding time and the transition to saturation (when all regions on the target surface are approximately uniformly subjected to the action of the primary Cs ions) is probably related to the

sputtering of the cesium film forming on the surface. According to Fig. 2, the instant of time t_o is also connected with the incidence of Cs^+ ions on the target surface in a quantity corresponding to a monatomic layer. In this case,, however, t_o does not agree precisely with the instant of transition of the $i_o(t)$ curves to saturation. The drop of the i(t) curves at $t > t_o$ may be explained by the reduction of the probability of collision of the primary Cs^+ ion with a molybdenum atom. The reduction is due to the fact that the target surface is covered by a Cs film. The rise of i(t) at $t < t_o$ has not yet found any reasonable explanation. There are 2 figures and 2 Soviet-bloc references.

ASSOCIATION: Sredneaziatskiy gosudarstvennyy universitet im. V. I. Lenina Tashkent (Central Asia State University imeni V. I. Lenin, Tashkent)

SUBMITTED: February 29, 1960

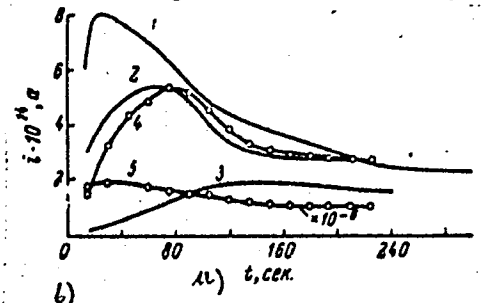


Рис. 1. Временной ход распыленных ионов и тока в цепи мишени.
J_0 (а/см²): 1 — $4.5 \cdot 10^{-4}$, 2 — $1.6 \cdot 10^{-4}$, 3 — $0.88 \cdot 10^{-4}$, 4 — $\frac{V(t)}{R}$, 5 — $i_0(t)$.

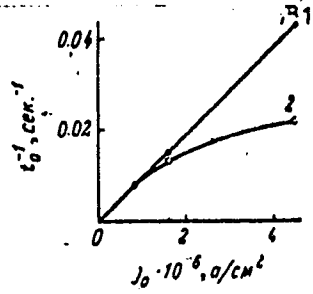


Рис. 2.
1 — зависимость t_0^{-1} от плотности тока первичного пучка, 2 — зависимость t_0^{-1}, найденного из кривой $V(t)$, от J_0.

Legend to Fig. 1: a) t, sec; b) time dependence of the sputtered ions and of the current in the target circuit.
Legend to Fig. 2: 1 - t_0^{-1} versus the current density of the primary beam, 2 - t_0^{-1} (as determined from V(t) curve) versus j_0.

Card 4/4

38927
S/181/62/004/006/004/051
B108/B104

26.2312
AUTHOR: Veksler, V. I.

TITLE: The energy spectra of slow positive rubidium and cesium ions surface scattered from molybdenum

/7

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1419-1423

TEXT: To throw light on the interaction of atomic particles with the surface of a solid, the author studied the energy spectrum of Rb^+ and Cs^+ ions (initial energy U= 15-250 ev) when scattered through 120° from hot molybdenum (T = 400-1450°K). He found that the change in the coefficient of secondary emission with time is due chiefly to contamination of the target by primary ions and only in minor degree to residual gases adsorbed on the target. The voltampere characteristics for the secondary ions at U>60-80 ev are qualitatively different from those at U<60-80 ev. In the former the curves show a break at a potential difference of 3-5 v between target and analyzer electrode. In this case the energy spectra of the secondary ions obviously have two maxima, the widths of which depend slightly on the primary ion energy. The low-voltage maximum is connected

Card 1/2

The energy spectra of slow positive . . .

with the thermal surface ionization of the Rb and Cs atoms and with the interaction between incident ion and target lattice. The displacement of the major maximum with increasing U indicates that each primary ion is scattered by a group of lattice atoms in the target. There are 4 figures.

ASSOCIATION: Tashkentskiy gosudarstvennyy universitet im. V. I. Lenina
(Tashkent State University imeni V. I. Lenin)

SUBMITTED: December 13, 1961

Card 2/2

34630

S/056/62/042/002/002/055
B102/B138

26.2312

AUTHOR: Veksler, V. I.

TITLE: Interaction of slow positive ions of rubidium and cesium with a molybdenum surface

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 2, 1962, 325 - 329

TEXT: An apparatus described previously (Veksler, ZhETF, 38, 324, 1960) was used to measure secondary ion emission from a Mo target bombarded with Cs^+ and Rb^+ ions of U = 10 ~ 250 ev. The current density of the bombarding ions was up to 10^{-6} a/cm^2, the energy spread ~1 ev. The residual gas pressure measured during bombardment with an ionization manometer was approximately $8 \cdot 10^{-8}$ mm Hg. Ion scattering was studied on a split Mo target. It was found that for U > 80 ev and V_2 = 3 - 4 v, the delay curves $i(V_2)$ have a break which does not exist at U < 80 ev. i is the secondary ion current, V_2 the retarding potential. The $eV_2/U = f(U)$

Card 1/3

curves were plotted for several i/i_0 values (i_0 is the i-value at $V_2 = 0$) for Cs^+ ($T = 1450^\circ K$) and Rb^+ ($T = 1400^\circ K$). At low voltages, up to about 60 ev, there is an exponential drop which is steeper as i/i_0 diminishes. At higher voltages they fall almost linearly. i was also measured in dependence on t the time elapsed after annealing at $1800^\circ K$, and K the coefficient of secondary ion emission was measured in dependence on U for Cs^+ and Rb^+ at various temperatures. The SE latter curves differ considerably for hot and cold targets. For cold targets K increases with U and tends to saturation; for hot targets, the curves show a maximum at low U and then K decreases with increasing U. The experimental results show the following: 1) primary ion scattering cannot be treated within the framework of the theory of pair collision of elastic spheres. 2) For $U<40$ ev the effect of atom binding in the lattice is so strong that the role of the bombarding ion mass becomes unimportant. 3) ion penetration into the depth of the lattice begins at $U \gtrsim 80$ ev; 4) the assumption of interaction between lattice and bombarding ion agrees much better with the results obtained than the assumption that the scattering cross section varies with U. 5) if there is an adsorbed film on the surface of the bombarded speci-

men most of the secondary-emission particles are sputtered adsorbed atoms. There are 3 figures and 9 references: 5 Soviet and 4 non-Soviet. The three references to English-language publications read as follows: G. K. Wehner. Phys. Rev. 93, 633, 1954; R. C. Bradley Phys. Rev. 93 719. 1954; G. K. Wehner. Phys. Rev. 114, 1270, 1959.

ASSOCIATION: Tashkentskiy gosudarstvennyy universitet (Tashkent State University)

SUBMITTED: June 8, 1961

X

VEKSLER, V.I.

Mechanism of the interaction between slow positive ions and a metal surface. Nauch. trudy TashGu no.221.Fiz. nauki no.21:128-135 '63. (MIRA 17:4)

BEN'YAMINOVICH, M.B.; VEKSLER, V.I.

Distribution by energies of the products of cathode sputtering of metals by mercury ions. Izv. AN Uz.SSR. Ser. fiz.-mat. nauk 7 no.3:29-37 '63. (MIRA 16:8)

1. Tashkentskiy gosudarstvennyy universitet imeni V.I. Lenina.

VEKSLER, V. I.

Concerning one method for studying cathode sputtering. Radiotekh. i elektron. 8 no.1:145-152 Ja '63. (MIRA 16:1)

1. Tashkentskiy gosudarstvennyy universitet im. V. I. Lenina.

(Cathodes) (Electron tubes)

45359

S/056/63/044/001/003/067
B108/B180

26.2812

AUTHOR: Veksler, V. I.

TITLE: Unpaired collisions in the interaction of slow positive ions with the surface of a metal

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 14 - 16

TEXT: In an earlier paper (ZhETF, 42, 325, 1962) it was found that the scattering of slow Rb^+ and Cs^+ ions (U = 15 - 250 ev) cannot be described by the theory of elastic pair interaction between the incident ion and a single lattice atom. Here W_m, the maximum energy of such ions scattered from a molybdenum target (T = 1400 - 1450°K), is examined as depending on U. The target was set at an angle of 120° to the primary ion beam. The results showed that for primary ion velocities $v_0 > 1.4 \cdot 10^6$ cm/sec the ions can be regarded as being scattered by four atoms of the target, and by the entire lattice for velocities $v_0 < 1.4 \cdot 10^6$ cm/sec. The region $v_0 \sim 1.4 \cdot 10^6$ cm/sec corresponding to $U \sim 100$ ev is, according to the four-

Card 1/2

S/056/63/044/001/003/067
B108/B180

Unpaired collisions in the ...

atom mechanism, the threshold for atom displacements in the lattice. This is probably the reason why marked intrusion of ions into the lattice begins at U > 80 ev. There are 2 figures. Reference to O. Roos, Z. Phys. 147: 184 (1957)

ASSOCIATION: Tashkentskiy gosudarstvennyy universitet (Tashkent State University)

SUBMITTED: June 8, 1962

Card 2/2

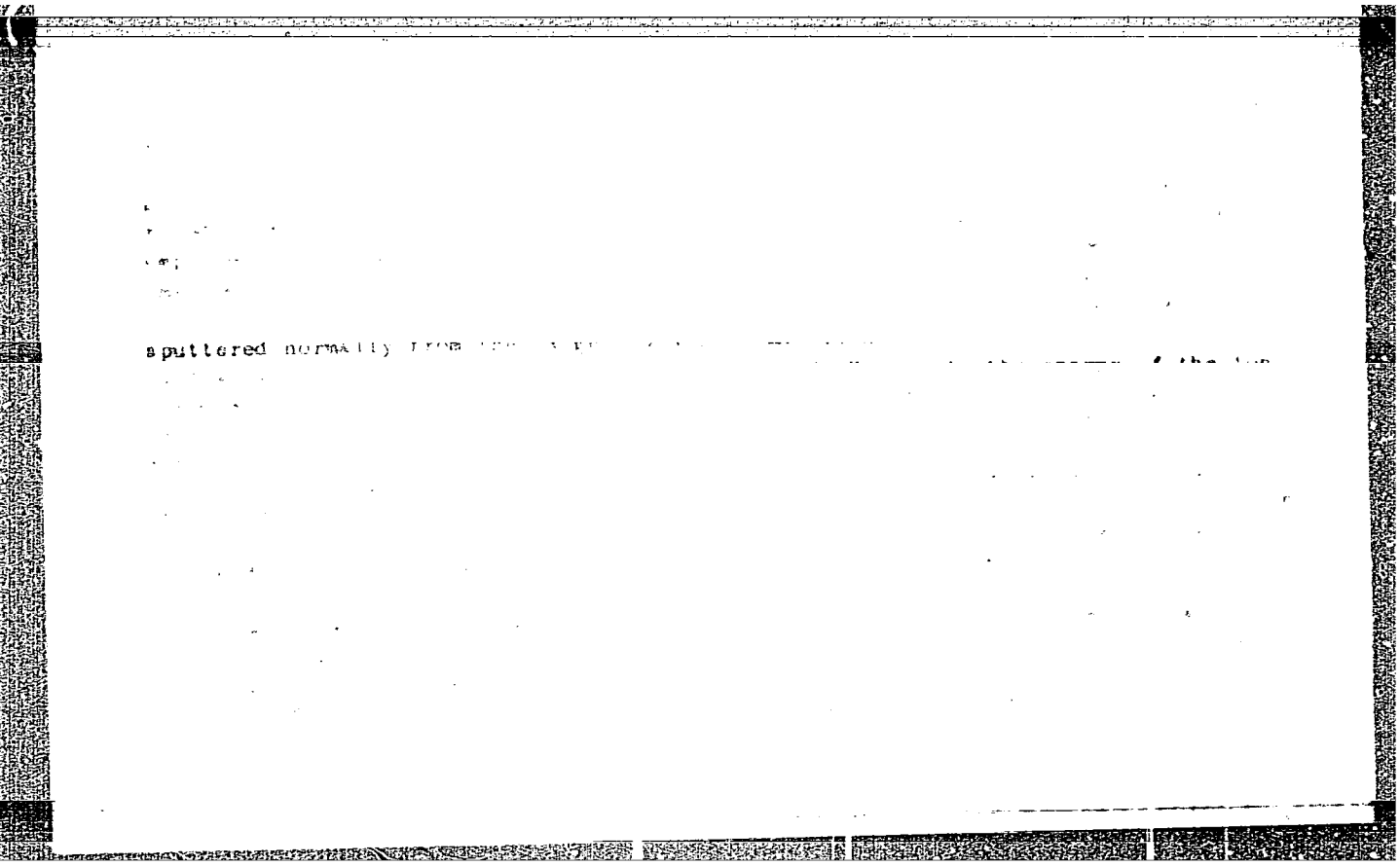
BEN'YAMINOVICH, M.B.; VEKSLER, V I.

Energy distribution of nickel atoms obtained in the cathode sputtering of nickel by mercury ions. Zhur. tekh. fiz. 34 no. 2:361-368 F '64. (MIRA 17:6)

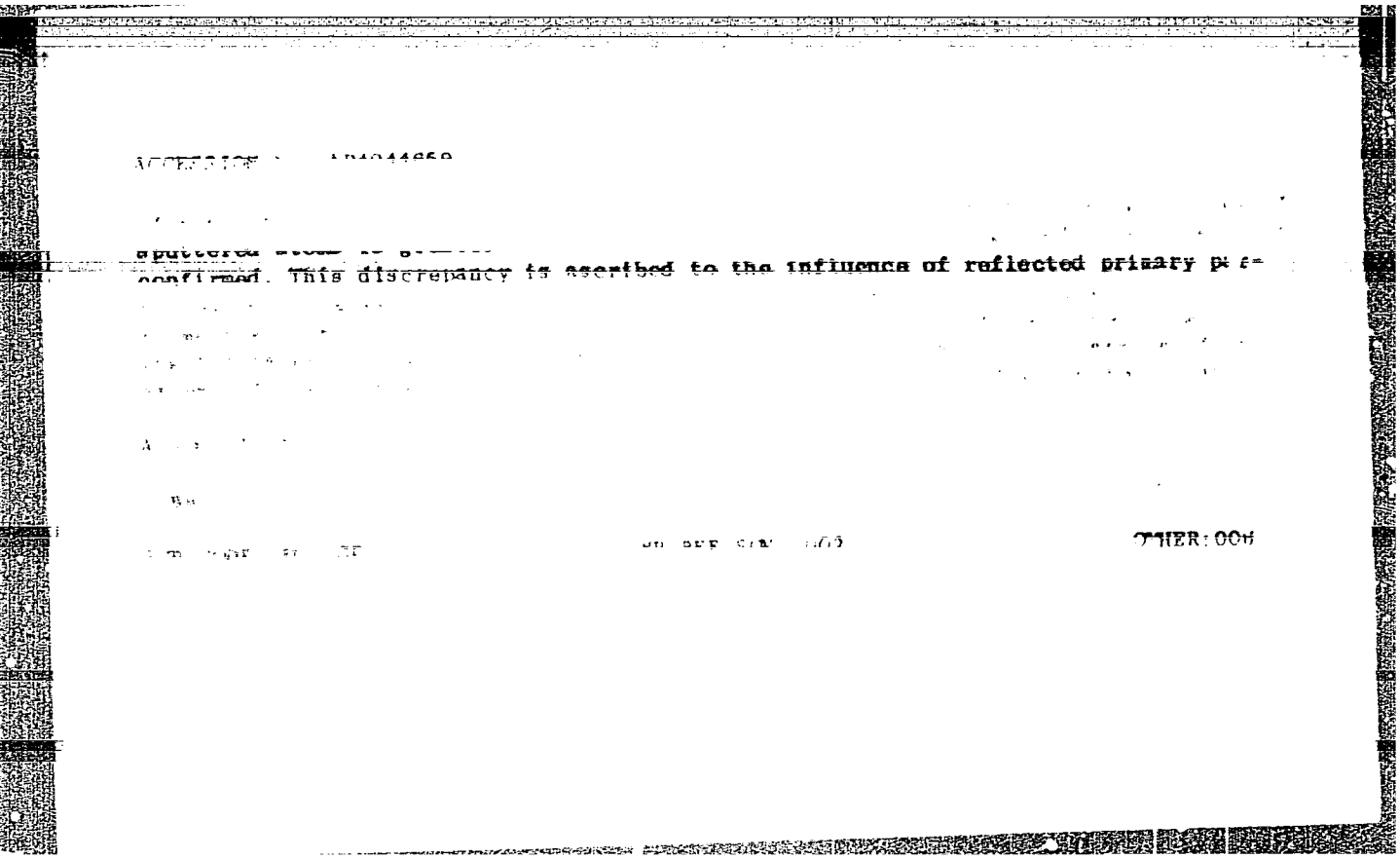
1. Gosudarstvennyy universitet imeni V.I.Lenina, Tashkent.

cribed their apparatus and experimental [illegible]
No.3,28,1963; Zh.tekhn.fiz.34,361,1964). A target of the metal under investigation was located in the equipotential region of a low pressure mercury arc plasma and was maintained at a negative potential with respect to the plasma. The ions sputtered from the target by the resulting mercury ion bombardment were ionized by electron impact in the plasma after escaping as neutral atoms from the field of the tar-

1/3



sputtered normally



confirmed. This discrepancy is ascribed to the influence of reflected primary p

OTHER: 004

ACCESSION NR: AP4043334 S/0181/64/006/008/2229/2237

AUTHOR: Veksler, V. I.

TITLE: Some angular dependences of the scattering of slow alkali-metal ions from a molybdenum surface

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2229-2237

TOPIC TAGS: molybdenum, potassium, rubidium, cesium, ion scattering, angular distribution, crystal lattice

ABSTRACT: The dependence of the maximum energy W_m of the ions K^+, Rb^+, and Cs^+, scattered by an incandescent molybdenum surface (T = 1600--1800K), on the energy of the primary ions (20--260 eV) was investigated for different scattering angles. This is similar to an earlier investigation (ZhETF v. 44, 14, 1963) of the maximum energies of Rb^+ and Cs^+, scattered by a molybdenum surface at an angle of 120°, on the energy of the primary ions U. The purpose of

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ACCESSION NR: AP4043334

the present work was to investigate experimentally several angular dependences of ion scattering, to study the dependence of $W_m(U)$ on the angles ψ between the directions of motion of the investigated ion before and after interaction with the surface (scattering angle) and the angle χ between the direction of motion of the primary ion and the normal to the surface of the target ("incidence angle"), and to check on the possible extension of the previously obtained results to other ions and to other scattering angles. The instrument and the experimental technique are described. The effective mass of the atoms of the lattice from which the scattering takes place is calculated on the basis of the obtained results and is plotted as a function of the kinetic energy imparted to the ion by the lattice atoms; it is found to be independent of the scattering angle. The effective mass of K^+ depends on the energy of the primary ions in the same manner as previously observed for Rb^+ and Cs^+. The angular dependence of the yield of scattered ions is investigated and the effect of distortion of the field on the value of W_m is estimated.

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In the interpretation of the experiments it is shown that not all results can be attributed to phenomena connected with the transfer of momentum in the direction of the closest packing of the lattice atoms, or to multiple scattering of the ions by individual target atoms. "The author is grateful to mechanic Ye. P. Vorob'yev and to glass blower B. L. Batrayev for help in preparing the experimental instrument." Orig. art. has: 8 figures and 4 formulas.

ASSOCIATION: Tashkentskiy gosudarstvenny*y universitet im. V. I. Lenina (Tashkent State University)

SUBMITTED: 28Oct63 ENCL: 01

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ACCESSION NR: AP4043334

ENCLOSURE: 01

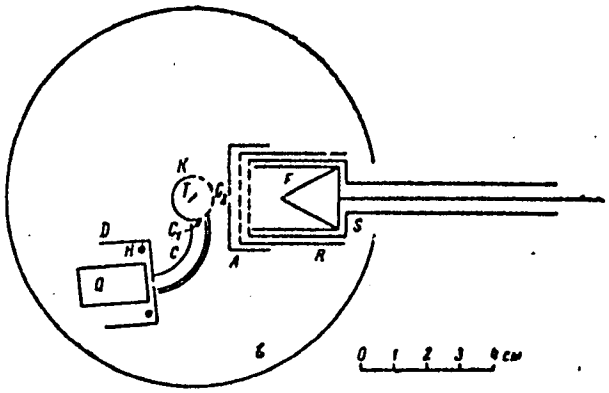

Diagram of instrument

Q - thermionic source, D - accelerating electrode, C - cylindrical capacitor, T - target, K - collector, R - insulator electrodes, F - Faraday cup, S, - guarding electrodes, H - tungsten ring for outgassing, G - holes in collector, covered with nickel screen

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ACCESSION NR: AP4013430 S/0057/64/034/002/0361/0368

AUTHOR: Bon'yaminovich, M.B.; Veksler, V.I.

TITLE: Investigation of the energy distribution of nickel atoms formed by cathode sputtering of nickel by mercury ions

SOURCE: Zhurnal tekhn.fiz., v.34, no.2, 1964, 361-368

TOPIC TAGS: cathode sputtering, sputtered atom energy distribution, sputtering cathode temperature effect, nickel, mercury

ABSTRACT: The energy distribution of neutral atoms formed by cathode sputtering of nickel by 200 to 800 eV mercury ions was investigated by a modification of the method of R.E.Honig (J.Appl.Phys.29,549,1958) and R.C.Bradley (Ibid.30,1,1959). The investigation was motivated at least in part by the fact that the authors were not convinced by the argument of G.Wehner (Ibid.31,1392,1960) that the momentum of the reflected particles could be neglected in his method. Nickel was chosen as the working material because it is easily distinguished from mercury in the mass spectrometer. The mercury ions were formed in an arc similar to that employed by G.Wehner (Phys.Rev.114,1270,1959). The nickel target was mounted near the wall of the dis-

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ACCESSION NR: AP4013430

charge chamber in the region beyond the principal anode, normally filled with an essentially equipotential plasma. Opposite the target was a graphite extraction electrode with an opening to permit access of the ions to the high vacuum portion of the apparatus. Neutral atoms ejected by mercury ion bombardment of the target, which was made 200 to 800 V negative with respect to the plasma, were ionized by electron impact while traversing the plasma. The ions thus formed passed through the opening in the extraction electrode and were focused and analyzed by an electrostatic system. The final analysis of the ions was performed by a mass spectrometer. Ions formed directly on the target were unable to escape because of the accelerating field. The many conditions that must be met in order that the experimental method give reliable results are discussed in considerable detail. It is concluded that these conditions are met for energies greater than about 10 eV, but that ions of lower energy interact significantly with the fields in the plasma and at its boundaries. For these low energies, other methods of investigation must be developed. The energy distribution of sputtered atoms was investigated as a function of target temperature. The temperature had no effect until appreciable vaporization set in at about 1000°C. At higher temperatures the number of low energy atoms rose sharply, while the number of high energy atoms remained essentially

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unchanged. "Student D.Rumi participated in the experiments and the authors express their gratitude to him." Orig.art.has: 3 formulas and 4 figures.

ASSOCIATION: Gosudarstvonny*y universitet im.V.I.Lenina, Tashkent (State University)

SUBMITTED: 03Dec62 DATE ACQ: 26Feb64 ENCL: 00

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BEN'YAMINOVICH, M.B.; VEKSLER, V.I.

Energy distribution of sputtered atoms appearing during the bombardment of metals by mercury ions. Izv. AN SSSR. Ser. fiz. 28 no.8:1387-1389 Ag '64 (MIRA 17:8)

BR

ACCESSION NR: AP4038423 S/0166/64/000/002/0064/0068

AUTHOR: Veksler, V. I.

TITLE: One mechanism of secondary ion emission

SOURCE: AN UzSSR. Izv. Seriya fiziko-matematicheskikh nauk, no. 2, 1964, 64-68

TOPIC TAGS: secondary emission, ion beam, adsorbed atom, sputtering, mercury ion, molybdenum target, emission coefficient, ion emission, secondary ion emission

ABSTRACT: A 3-mm^2 molybdenum target was bombarded with a 100—700-ev energy Hg^+ ion beam, and the resulting secondary ion emission was analyzed by a mass spectrometer. The curves of secondary-emission coefficient K in relation to beam energy U show maxima whose position is independent of primary current density j and mercury vapor pressure p. The secondary current i, on the other hand, is a function of the primary current and pressure. This behavior is predicted theoretically by

$$i = i_1\left[\frac{\gamma' K_p}{\varphi + \gamma'(K_p+\varphi)\varepsilon}\left(\varphi p + \frac{j}{e}\varphi\right) + \frac{\gamma' K_p' \psi}{\psi + K_p'}\right]^{\frac{1}{1-\gamma}}$$

where I and I' are the probability of scattered atom ionization in primary and

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secondary processes, respectively, ν is the quantity of adsorbed atoms per unit area of target per unit time at 1 mm Hg pressure, φ is the degree of surface coating, K_p is the coefficient of cathode sputtering, and ϕ is the adhesion of primary ions to the surface. The maxima in the K - U curve are shown to be caused by primary ions interacting with the adsorbed atoms, with a possible electron exchange between the ions and adsorbed atoms. This is represented by the equation

$$K = \frac{2\pi}{a^2} \int_0^{r_m} P_n r dr = \frac{1}{a^2} \int_0^{\sqrt{\pi/\gamma}\, r_m} \left[1 - e^{-\frac{\nu}{U} \pi r^2} \right] \xi d\xi$$

and is in good agreement with the experimental results from Hg^+ - Mo interactions. Orig. art. has: 3 figures and 11 formulas.

ASSOCIATION: Tashkentskiy gosuniversitet im. V. I. Lenina (Tashkent State University)

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